

What is claimed is:

[Claim 1] 1. A method for fabricating poly-crystal indium tin oxide (ITO) film, the method comprising:

forming an amorphous ITO film on a substrate; and
performing a rapid thermal annealing (RTA) process, to transform the amorphous ITO film into a poly-crystal ITO film.

[Claim 2] 2. The method of claim 1, wherein the step of forming the amorphous ITO film includes sputtering, physical vapor deposition, or chemical vapor deposition.

[Claim 3] 3. The method of claim 1, wherein a thickness of the amorphous ITO film is 400 – 1500 angstroms.

[Claim 4] 4. The method of claim 1, wherein the RTA process is operated under 400°C – 700°C for 0.5 – 6 minutes.

[Claim 5] 5. The method of claim 1, wherein the substrate includes glass substrate, silicon substrate, or plastic substrate.

[Claim 6] 6. The method of claim 1, wherein substrate includes rigid substrate or flexible substrate.

[Claim 7] 7. A method for fabricating poly-crystal indium tin oxide (ITO) electrode, suitable for use to form electrodes in a thin film transistor array, a color filter, a light emitting diode, or an organic electro-luminescence display, the method comprising:

forming an amorphous ITO film on a substrate;
patterning the amorphous ITO film, to form a plurality of amorphous ITO electrodes on the substrate; and
performing a rapid thermal annealing (RTA) process, to transform the amorphous ITO electrodes into a plurality of poly-crystal ITO electrodes.

[Claim 8] 8. The method of claim 7, wherein the step of forming the amorphous ITO film includes sputtering, physical vapor deposition, or chemical vapor deposition.

[Claim 9] 9. The method of claim 7, wherein a thickness of the amorphous ITO electrode is 400 – 1500 angstroms.

[Claim 10] 10. The method of claim 7, wherein the step of patterning the amorphous ITO film includes:

forming a patterned photoresist layer on the amorphous ITO film;
removing a portion of the amorphous ITO film by using the photoresist layer as the pattern as a mask, so as to form the amorphous ITO electrodes on the substrate; and
removing the photoresist layer.

[Claim 11] 11. The method of claim 10, wherein the portion of the amorphous ITO film is removed by oxalic acid.

[Claim 12] 12. The method of claim 7, wherein the RTA process is operated under 400°C – 700°C for 0.5 – 6 minutes.

[Claim 13] 13. The method of claim 7, wherein the substrate includes glass substrate, silicon substrate, or plastic substrate.

[Claim 14] 14. The method of claim 7, wherein substrate includes rigid substrate or flexible substrate.